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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,125	10/06/2003	Tatsuhiro Fukuzawa	50195-390	1090

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McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

ECHELMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1745

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/678,125	Applicant(s) FUKUZAWA ET AL.	
	Examiner Alix Elizabeth Echelmeyer	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed May 8, 2007. Claims 1 and 8 have been amended. Claim 2 has been cancelled. Claims 9-16 are withdrawn from a previous restriction requirement. Claims 1 and 3-8 are pending and are rejected for the reasons given below.

Specification

2. The objection to the disclosure is withdrawn in light of the amendment.

Claim Objections

3. The objection of claim 6 is withdrawn in light of Applicants' Remarks filed May 8, 2007.

4. The objection of claim 8 is withdrawn in light of the amendment.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "almost reached" is indefinite because it fails to particularly point out at what state of charge the change in voltage of the changeable

active electrode material occurs. In other words, "almost reached" could be 80% of the charging capacity, or it could be 99.99% of the charging capacity.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States..

8. Claims 1, 3, 6, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Abraham et al. (US Patent 5,766,796).

Regarding claims 1 and 6, Abraham et al. teach a bipolar rechargeable battery (abstract, Figure 1). The anode is made of lithium titanate and the cathode is made of spinel lithium manganate (abstract). The cathode has a capacity of 6.7 mAh, or 113.6% of the capacity of the anode, which is 5.9 mAh. Thus, the lithium manganate of the cathode is the unchangeable material, and the spinel lithium titanate of the anode is the changeable material.

With regard to claim 3, it is seen in Figure 1 of Abraham et al. that one layer of the battery is formed by the cathode, and one is formed by the anode. Further, the judging of the state of charge of the battery is inherently made since the material properties of the electrodes result in the related characteristics such as completion voltage.

As for claim 7, Abraham et al. teach a solid polymer electrolyte (abstract).

Regarding claim 8, a plurality of the batteries taught by Abraham et al. can be seen in Figure 1 – and the batteries are separated by a bipolar plate (column 4 lines 20-21).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. in view of Ohsaki et al. (US Patent 5,856,043).

The teachings of Abraham et al. as discussed above are incorporated herein.

Abraham et al. fail to teach that the capacity of the anode is greater than the capacity of the cathode.

Ohsaki et al. teach that the anode capacity is preferable 1.05-1.4 times that of the cathode, which results in a battery having improved safety (column 8 lines 63-67; column 9 lines 1-7).

It would be desirable to make the anode capacity greater than the cathode capacity in the battery of Abraham et al., since Ohsaki et al. teach that this results in a safer battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the anode capacity greater than the cathode

capacity in the battery of Abraham et al., since Ohsaki et al. teach that this results in a safer battery.

Regarding claim 5, Abraham et al. further fail to teach a graphite anode.

Ohsaki et al. teach a graphite anode and a lithium manganate cathode (column 3 lines 1-21; column 7 lines 33-35).

The battery of this formation would have the same completion voltage range as that of the battery of claim 5 since the materials are the same and the completion voltage of the anode is higher than the compl (see Figure 11 of the instant specification)

Ohsaki et al. teach that this battery, with a graphite anode and lithium complex oxide cathode, formed having a larger anode capacity provides overcharging protection, which prevents electrolyte decomposition and improves cycle life (column 1 lines 62-67; column 2 lines 1-2).

It would be desirable to use the graphite anode and lithium manganate cathode of Ohsaki et al. in the battery of Abraham et al., sine it would prevent overcharge, which prevents electrolyte decomposition and improves cycle life.

Response to Arguments

11. Applicant's arguments with respect to claims 1 and 3-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1745

aee